

WHAT IS CLAIMED IS:

1. A light emitting die package comprising:
 - a substrate comprising an electrically and thermally conductive material and having a first surface;
 - a thermally conductive, electrically insulating film covering at least a portion of said first surface;
 - a first conductive element on said insulating film, said conductive element insulated from said substrate by said insulating film;
 - a second conductive element on said insulating film, said second conductive element spaced apart from said first conductive element and electrically insulated from said substrate by said insulating film wherein at least one of said first and second conductive elements comprises a mounting pad for mounting a light emitting die thereon;
 - a reflector plate coupled to said substrate and substantially surrounding the mounting pad; and
 - a lens substantially covering the mounting pad.
2. The light emitting die package recited in claim 1 further comprising a light emitting diode (LED) mounted on said substrate and connected to the first and second conductive elements.
3. The light emitting die package recited in claim 2 wherein the LED is encapsulated within optically clear polymer.
4. The light emitting die package recited in claim 1 wherein said first and second conductive elements comprise metal traces.

5. The light emitting die package recited in claim 1 wherein said substrate comprises a metal.
6. The light emitting die package recited in claim 5, wherein said substrate comprises a metal selected from the group consisting of copper and aluminum.
7. The light emitting die package recited in claim 5, wherein said substrate comprises a copper/aluminum alloy.
8. The light emitting die package recited in claim 1 wherein said insulating film comprises a ceramic polymer film.
9. The light emitting die package recited in claim 1, wherein said substrate comprises a second surface opposite said first surface, and further comprising at least one via hole through said substrate.
10. The light emitting die package recited in claim 9, wherein the surface of said via hole is coated with an insulating film coating.
11. The light emitting die package recited in claim 10, wherein said via hole includes a conductive trace therethrough, said conductive trace is insulated from said substrate by said insulating film coating, and said conductive trace is in electrical contact with one of said first and second conductive leads.

12. The light emitting die package recited in claim 9 wherein said second surface of said substrate includes a thermally conductive insulating film on at least a portion of said second surface and wherein said package further comprises a third electrical lead on said second surface, said third electrical lead is insulated from said substrate by said thermally conductive insulating film and said third electrical lead is in electrical contact with said conductive trace through said via hole.
13. The light emitting die package recited in claim 1 further comprising an external heat sink coupled to said substrate.
14. The light emitting die package recited in claim 13 wherein said substrate has a bottom side plated with metals for coupling with said external heat sink.
15. The light emitting die package recited in claim 1 wherein at least one conductive element extends from the mounting pad to a side of said substrate.
16. The light emitting die package recited in claim 1 wherein said substrate comprises flanges along at least one side for mechanically engaging said reflector plate.
17. The light emitting die package recited in claim 1 wherein said reflector plate substantially surrounds the mounting pad.
18. The light emitting die package recited in claim 1 wherein said reflector plate defines a reflection surface.

19. The light emitting die package recited in claim 1 wherein said reflector plate comprises material having high thermal conductivity.
20. The light emitting die package recited in claim 1 wherein said reflector plate comprises at least one leg mechanically engaging said substrate for increased thermal transfer.
21. The light emitting die package recited in claim 1 wherein said lens comprises a trough adapted to receive optical chemicals.
22. The light emitting die package recited in claim 1 wherein said lens comprises frequency shifting compounds.
23. The light emitting die package recited in claim 1 wherein said lens comprises diffusant.
24. The light emitting die package recited in claim 1 wherein said lens comprises a phosphor.
25. A light emitting die package comprising:
 - a metal substrate having a first surface;
 - an electrically insulating film covering at least a portion of said first surface;
 - a first conductive trace on said insulating film, said conductive trace insulated from said substrate by said insulating film;

a mounting pad for mounting a light emitting device, said mounting pad electrically connected to said first conductive trace;

a reflector plate coupled to said substrate and substantially surrounding the mounting pad; and

a lens substantially covering the mounting pad.

26. A light emitting die package comprising:

a metal substrate having a first surface;

a conductive trace on said first surface, said conductive trace insulated from said metal substrate by an insulating film;

said conductive trace forming a mounting pad for mounting a light emitting device; and

a metal lead electrically connected to said conductive trace and extending away from said first surface.

27. A light emitting die package comprising:

a metal substrate having a first surface and a second surface opposite said first surface;

a via hole through said substrate;

a conductive trace extending from said first surface to said second surface, said conductive trace insulated from said metal substrate by insulating film; and

a metal contact pad on one of said first and second surfaces electrically connected to said conductive trace.